WHAT IS CLAIMED IS:

1. A printing plate precursor comprising a substrate having coated thereon in the following order:

(a) a hydrophilic layer comprising a mixture of a crosslinkable polymer and a thermally active crosslinking metal salt, and

(b) an overcoat eluable in aqueous media,

the hydrophilic layer capable of becoming less hydrophilic upon exposure to radiation that effects crosslinking in the layer.

2. The printing plate precursor of claim 1, wherein crosslinking reactions of the crosslinkable polymer are independent of crosslinking actions of the thermally active crosslinking metal salt.

3. The printing plate precursor of claim 1, wherein crosslinking reactions of the crosslinkable polymer are interdependent on crosslinking actions of the thermally active crosslinking metal salt.

4. The printing plate precursor of claim 1, wherein the crosslinkable polymer comprises a polymer derived from an ethylenically unsaturated monomer.

5. The printing plate precursor of claim 1, wherein the crosslinkable polymer comprises a polymer derived from at least one ethylenically unsaturated monomer selected from the group consisting of (meth)acrylic acid, butyl (meth)acrylate, cyclohexyl (meth)acrylate, ethylhexyl (meth)acrylate, benzyl (meth)acrylate, furfuryl (meth)acrylate, ethoxyethyl (meth)acrylate, tricyclodecanyloxy (meth)acrylate, nonylphenyloxyethyl (meth)acrylate, hexanediol (meth)acrylate, 1,3-dioxolane (meth)acrylate, hexanediol

di(meth)acrylate, butanediol di(meth)acrylate, neopentyl glycol di(meth)acrylate, polyethylene glycol di(meth)acrylate, isobornyl(meth)acrylate, tricyclodecanedimethylol di(meth)acrylate, tripropylene glycol di(meth)acrylate, bisphenol-A di(meth)acrylate, pentaerythritol tri(meth)acrylate, dipentaerythritol hexa(meth)acrylate, dipentaerythritol caprolactone adduct hexa(meth)acrylate, trimethylolpropane tri(meth)acrylate, trimethylolpropane propylene oxide adduct tri(meth)acrylate, polyoxyethylated bisphenol-A di(meth)acrylate, polyester (meth)acrylate, polyurethane (meth)acrylate, and acetoacetoxyethyl (meth)acrylate.

6. The printing plate precursor of claim 1, wherein the polymer comprises at least one of a poly (meth) acrylic acid and a saccharide.

7. The printing plate precursor of claim 1, wherein the polymer comprises at least one of a poly (meth)acrylic acid and chitosan.

8. The printing plate precursor of claim 1, wherein the thermally active crosslinking metal salt is at least one of a metal salt of sulfamide, sulfanylamide, acetosulfamine, sulfathiazole, sulfadiazine, sulfamerazine, sulfamethoxazole, sulfamethazine, sulfaisoxazole, homosulfamine, sulfisomidine, sulfaguanidine, sulfamethizole, sulfapyridine, phthalisosulfathiazole, succinylsulfathiazole, amino-mercapto-thiadiazole, benzothiazole, benzimidazole, fatty acids, and complexed metal salts.

9. The printing plate precursor of claim 1, wherein the overcoat comprises at least one aqueous-soluble organic polymer and an infrared absorbing dye.

10. The printing plate precursor of claim 1, wherein the overcoat layer comprises at least one aqueous-soluble organic polymer, at least one saccharide and an infrared-absorbing dye.

11. The printing plate precursor of claim 1, wherein the overcoat layer comprises an aqueous-soluble organic polymer, chitosan and an infrared-absorbing dye.

12. The printing plate precursor of claim 9, wherein the infrared-absorbing dye is an aqueous-soluble infrared-absorbing dye.

13. The printing plate precursor of claim 10 wherein the infrared-absorbing dye is an aqueous-soluble infrared-absorbing dye.

14. The printing plate precursor of claim 1, wherein the substrate is a flat sheet, a sleeve or a printing cylinder.

15. A printing plate precursor comprising a substrate having coated thereon in the order stated a first layer comprising a heat-sensitive composition and an overcoat layer eluable in aqueous media.

16. A heat-sensitive composition comprising:

(a) a crosslinkable hydrophilic polymer;

(b) a thermally active crosslinking metal salt;

(c) an infrared radiation-sensitive dye that is soluble in a solvent, the solvent being at least one of water and a water-miscible organic solvent, the infrared-sensitive dye having maximum absorption at wavelengths greater than 700 nm as measured in the solvent.

17. The composition of claim 16, wherein the crosslinkable hydrophilic polymer is selected from at least one of the following classes:

(a) thermosetting phenolic resins,

(b) thermoset polyimide resins,

(c) thermoset epoxides or epoxy resins,

(d) thermoset polyester resins,

(e) thermoset polyurethanes,

(f) thermoset urea resins,

(g) thermoset melamine resins,

(h) thermoset furan resins, and

(i) thermoset vinyl ester resins.

18. The composition of claim 16, wherein the crosslinkable hydrophilic polymer comprises a polymer derived from an ethylenically unsaturated monomer.

19. The composition of claim 16, wherein the crosslinkable polymer comprises a polymer derived from at least one ethylenically unsaturated monomer selected from the group consisting of (meth)acrylic acid, butyl (meth)acrylate, cyclohexyl (meth)acrylate, ethylhexyl (meth)acrylate, benzyl (meth)acrylate, furfuryl (meth)acrylate, ethoxyethyl (meth)acrylate, tricyclodecanyloxy (meth)acrylate, nonylphenyloxyethyl (meth)acrylate, hexanediol (meth)acrylate, 1,3-dioxolane (meth)acrylate, hexanediol di(meth)acrylate, butanediol di(meth)acrylate, neopentyl glycol di(meth)acrylate, polyethylene glycol di(meth)acrylate, isobornyl(meth)acrylate, tricyclodecanedimethylol di(meth)acrylate, tripropylene glycol di(meth)acrylate, bisphenol-A di(meth)acrylate, pentaerythritol tri(meth)acrylate, dipentaerythritol hexa(meth)acrylate, dipentaerythritol caprolactone adduct hexa(meth)acrylate, trimethylolpropane tri(meth)acrylate, trimethylolpropane propylene oxide adduct tri(meth)acrylate, polyoxyethylated bisphenol-A di(meth)acrylate, polyester

(meth)acrylate, polyurethane (meth)acrylate, and acetoacetoxyethyl (meth)acrylate.

20. The composition of claim 16, wherein the crosslinkable polymer is at least one of a poly (meth)acrylic acid and a saccharide.

21. The composition of claim 16, wherein the crosslinkable polymer is at least one of polyacrylic acid and chitosan.

22. The composition of claim 16, wherein the thermally active crosslinking metal salt is selected from at least one of the following groups: metal salts of sulfamide, sulfanylamide, acetosulfamine, sulfathiazole, sulfadiazine, sulfamerazine, sulfamethoxazole, sulfamethazine, sulfaisoxazole, homosulfamine, sulfisomidine, sulfaguanidine, sulfamethizole, sulfapyridine, phthalisosulfathiazole, succinylsulfathiazole, amino-mercapto-thiadiazole, benzothiazole, benzimidazole, fatty acids, and complexed metal salts.

23. The composition of claim 16, wherein the thermally active crosslinking metal salt comprises silver 2-mercapto-5-amino-1,2,4-thiadiazole.

24. The composition of claim 16, wherein the crosslinkable polymer is present at from about 0.5 to about 5 weight % and the heat-reactive crosslinking metal compound is present at from about 2 weight % to about 10 weight % and the infrared radiation sensitive dye is present at from about 0.1 weight % to about 1.5 weight%.

25. A method of imaging comprising the steps of:

(a) providing the printing plate precursor of claim 1 and

(b) imagewise exposing said printing plate precursor to provide exposed and unexposed areas in the imaging layer of said printing

plate precursor, whereby the exposed areas are rendered less hydrophilic than the unexposed areas by heat provided by the imagewise exposing.

26. The method of claim 25, wherein said imagewise exposing is carried out using one of an infrared radiation emitting laser and an infrared radiation emitting laser array.

27. A method of making a printing plate comprising the steps of:

(a) providing a printing plate precursor, the precursor comprising a substrate having coated thereon in the following order:

(i) a hydrophilic imaging layer comprising a mixture of a crosslinkable polymer and a thermally active crosslinking metal salt, and

(ii) an overcoat eluable in aqueous media;

(b) imagewise exposing said printing plate precursor to provide exposed and unexposed areas in the imaging layer, whereby the exposed areas are rendered less hydrophilic than the unexposed areas by heat provided by the imagewise exposing; and

(c) removing the overcoat in the unexposed areas by contacting the printing plate precursor with at least one of lithographic printing ink and fountain solution.

28. The method of claim 26, wherein the removing is performed on-press.